

Polymer Nanowire-Based Reversible, and Quasi Real-Time, Ethylene Analyzer, Phase I

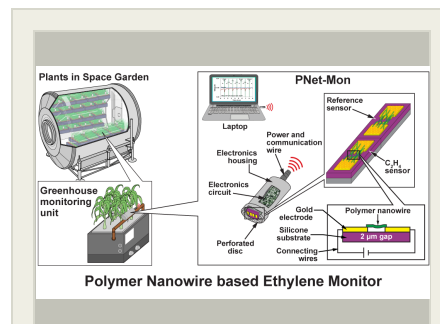
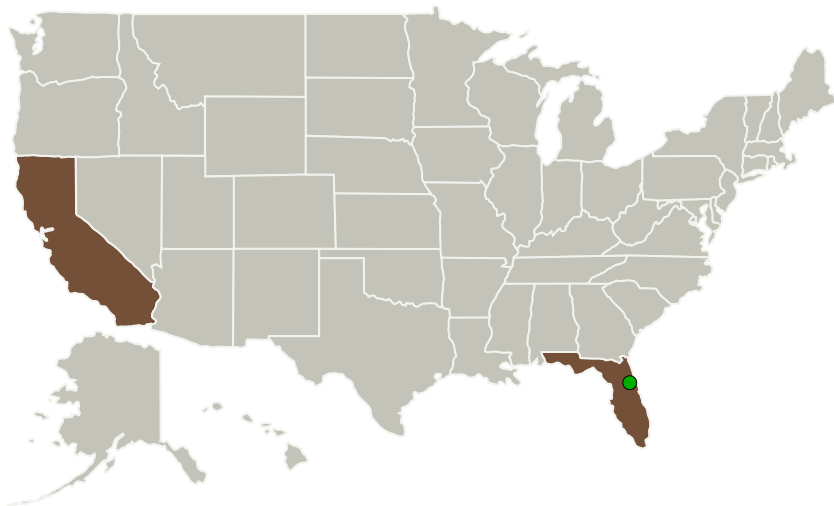
Completed Technology Project (2016 - 2016)



Project Introduction

In-orbit or deep space-based plant growth systems are of interest to NASA as part of fundamental space research and for ensuring supply of fresh produce to the crew. These systems are part of enabling technologies for sustainable and long-term human spaceflight. Ethylene gas is a natural plant metabolite and phytohormone. In enclosed spaceship settings, ethylene build-up can be deleterious to plants. Thus, there is a need to monitor ethylene in real-time, sensitively, reversibly and effectively. Currently, state of the art technology is limited with portability and detection sensitivity issues. To close this technology gap, InnoSense LLC (ISL) will develop a solid state electrochemical sensor (Polymer Nanowire based ethylene Monitor (PNet-Mon)). To expedite this development, PNet-Mon will build on electronic hardware platform engineered by ISL previously. The innovation on this project will only be on ethylene sensing. This effort directly addresses a need expressed in NASA Technical Roadmap (TA 6).

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Innosense, LLC	Lead Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB)	Torrance, California
● Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Primary U.S. Work Locations

California	Florida
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Project Transitions

**June 2016:** Project Start**December 2016:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140278>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Innosense, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

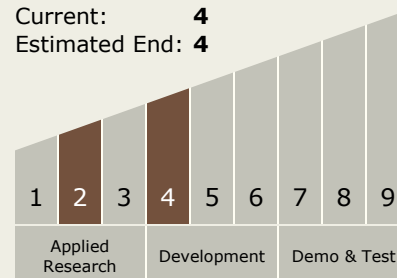
Anamika Ray

Technology Maturity (TRL)

Start: 2

Current: 4

Estimated End: 4

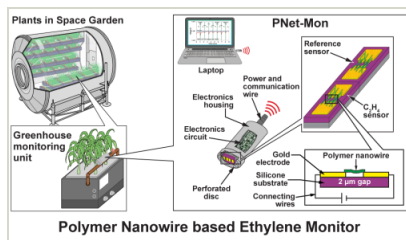


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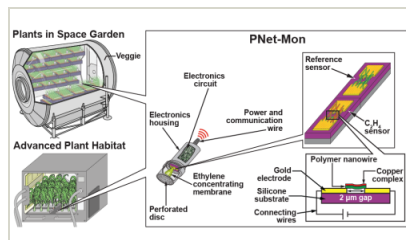


Images



Briefing Chart Image

Polymer Nanowire-Based Reversible, and Quasi Real-Time, Ethylene Analyzer, Phase I
(<https://techport.nasa.gov/image/125978>)



Final Summary Chart Image

Polymer Nanowire-Based Reversible, and Quasi Real-Time, Ethylene Analyzer, Phase I Project Image
(<https://techport.nasa.gov/image/133539>)

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.4 Environmental Monitoring, Safety, and Emergency Response
 - └ TX06.4.1 Sensors: Air, Water, Microbial, and Acoustic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System